Message

From: Lindstrom, Andrew [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=04BF7CF26AA44CE29763FBC1C1B2338E-LINDSTROM, ANDREW]
Sent: 1/23/2017 8:59:08 PM
To: Stefan Posner [Stefan.Posner@swerea.se]
Subject: RE: from Stefan Posner - question concerning long chain PFAS longer than PFOA
Attachments: Prevedouros et al. 2006.pdf; 226-1229.pdf

Stefan,

It is good to hear from you.

These are dark times here and we are fearing the worst and hoping for better.

I don't know much about the uses of the compounds that you've listed, but will share what I have.

We're coincidentally working on a project with the state of New Jersey where we are trying to determine how much PFNA (or APFN, ammonium perfluorononanoate) has been released from a company that was producing polyvinylidene fluoride based polymers. (PFNA was used as a processing aid in the same way that PFOA was used to produce polytetrafluoroethylene).

Please see the text highlighted below from Prevedouros et al. 2006.

Ammoniumperfluorononanoate (APFN) is manufactured primarily in Japan by oxidation of a mixture of linear fluorotelomer olefins (FTOs) to the corresponding odd numbered PFCAs (*24*, *25*). The principal raw material is 8-2 fluorotelomer olefin (8-2 FTO). Surflon S-111, a commercial product (CAS 72968-3-88), is described as "Fatty acids, C7-13, perfluoro, ammonium salts" a mixture of PFCAs between seven and thirteen carbons in length (*26*). Patent citations also indicate fluorotelomer iodide carboxylation as a process for APFN production (*27*). The starting fluorotelomer olefin or iodide dictates the resulting PFCA composition. APFN production is believed to have started in about 1975 (*24*) and continues today. APFN is primarily used as a processing aid in fluoropolymer manufacture, most notably polyvinylidene fluoride (PVDF). We estimate annual APFN production in 2004 to be between 15 and 75 t. We further estimate emissions to air and water from APFN production to be 10% of the amount produced. Based upon APFN production from 1975 to 2004, estimated historical global emissions from APFN manufacture are between 70 and 200 t. No information was found describing efforts to reduce emissions from APFN manufacture.

I've attached the original Prevedouros et al. paper and the AR226 Docket document they reference.

Please note that the Surflon S-111 mixture contains the C9, C11, and C13 carboxylic acids (most of what you are looking for) and that the polyvinylidene fluoride based polymers have been used extensively worldwide.

I imagine that all of the compounds you are trying to find also would have been produced in the ECF process targeted to produce PFOA, and they would also likely come from degradation of a wide range of fluoropolymers and AFFF mixtures.

We are finding these materials to be rare in water supplies, perhaps because of their long chain length and limited solubility. Indeed, our recent national drinking water survey only found PFNA in a very small number of locations, one of which is the New Jersey community I mentioned above.

Please keep up the great work and let me know if I can help in any way.

Take care,

Andy

From: Stefan Posner [mailto:Stefan.Posner@swerea.se]
Sent: Monday, January 23, 2017 7:15 AM
To: Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>
Subject: from Stefan Posner - question concerning long chain PFAS longer than PFOA

Hi Andrew

I hope you are well.

We are currently working with added regulation in EU concerning the following PFAS

Perfluorononanoic acid	PFNA	375-95-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluoroundecanoic acid	PFUnA	2058-94-8
Heptacosafluorotetradecanoic acid	PFTA	376-06-7
Tricosafluorododecanoic acid	PFDoA	307-55-1
Pentacosafluorotridecanoic acid	PFTrDA	72629-94-8

What we (German, Swedish and Norwegian EPA) need to know is what these (or their precursors have been used for, what kind of industrial applications. If there is any documentation at US EPA that could give us any hint that would be great.

Many thanks in advance

Best regards
Stefan

Stefan Posner
Senior researcher

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Från: Lindstrom, Andrew [mailto:Lindstrom.Andrew@epa.gov]
Skickat: den 29 januari 2016 18:58
Till: Stefan Posner
Kopia: Simona, Xenia and Arlene
Ämne: RE: PFAS Analysis Call Jan. 28 @ 8 am PST

Stefan,

Thank you very much – yes, this is helpful.

I would very much appreciate any updates you can share regarding PFAS and the SC.

Take care,

Andy

From: Stefan Posner [mailto:Stefan.Posner@swerea.se]
Sent: Friday, January 29, 2016 12:01 PM
To: Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>
Cc: Simona, Xenia and Arlene <simona@greensciencepolicy.org>
Subject: SV: PFAS Analysis Call Jan. 28 @ 8 am PST

Dear Andrew

As far as my colleague is concerned there are no DWR chemicals in the USEtox database available so it would not be possible to draw the kind of conclusions that were done by GORE.

In their calculation other emissions such as heavy metal leaching in mines etc that exist in these tools may have had an impact on the conclusions made. But since no references are given ny GORE what DWR substances that have been assessed and how it is not possible to understand the results in this study at all.

I hope this clarified a bit. For your information I asked once more today GORE about background data to this report but so far no answer.

Mr Kiehl at GORE only asked me a few days ago where I have got tox data on various DWR and I sent some recent references …. I will share any answer from GORE with you.

For your information I am currently writing one of the final guidance and decision reports for the Stockholm Convention on PFOS, other highly fluorinated chemicals and their feasible alternatives. This report will be one of a few for a decision at SC of the destiny of PFAS.

I will keep you all informed about the progress in this work

Best regards
Stefan

Från: Lindstrom, Andrew [mailto:Lindstrom.Andrew@epa.gov]
Skickat: den 29 januari 2016 17:53
Till: Stefan Posner
Kopia: Simona, Xenia and Arlene
Ämne: RE: PFAS Analysis Call Jan. 28 @ 8 am PST

Stefan,

Could you please explain this a little more – I don't understand at all.

It seems like they are using some kind of modeling process to push their results one way.

Of course any model will be opaque to people who don't use it or know where parameters can be bent to influence the outcome.

It's the "this is complicated and you wouldn't understand, so let us tell you" argument.

Thank you,

Andy

From: Stefan Posner [mailto:Stefan.Posner@swerea.se]
Sent: Friday, January 29, 2016 11:08 AM
To: Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>
Cc: Simona, Xenia and Arlene <simona@greensciencepolicy.org>
Subject: SV: PFAS Analysis Call Jan. 28 @ 8 am PST

Dear all,

I just recieved an answer from one of my most skilled colleagues on LCA at Swerea, Ms Sandra Roos. She writes as follows concerning the GORE report.

Quote from GORE report;

"To counterbalance this, Gore decided to use not only a standard LCA methodology (ReCiPe) but also the leading comparative model supported by UNEP for evaluating toxicity: the USEtoxTM model."

Sandras response:

It does not sound like that they have developed characterization factors for DWR substances = no, but the most amazing thing they have done is to use both USES-LCA and USEtox. And they get most tox from the use phase (read: runoff of heavy metals from landfills of waste from coal mining – I do not hope the US electricity is produced from coal from such coal mines!)

Best regards
Stefan

Från: Lindstrom, Andrew [mailto:Lindstrom.Andrew@epa.gov]
Skickat: den 28 januari 2016 22:01
Till: Stefan Posner
Kopia: Simona, Xenia and Arlene
Ämne: FW: PFAS Analysis Call Jan. 28 @ 8 am PST

Stefan,

I hope you are doing well.

Here are some comments that I have on the "W.L. Gore: Non-PFC DWRs Can Release More Chemicals" piece we talked about in today's PFAS analytical call.

Is there an actual study? All I can find is a press release. If you have the study please let us know.

They do have a link to the Life Cycle Analysis (gore-tex.com/responsibility), but I don't see a study there either.

But going on what we have written below, I will comment.

Firstly, this is not a scientific study. There are no data to review, no hypotheses tested, no chemicals identified, no references given. This clearly isn't science – it's a press release advertising a product.

The DWR treatment(s?) that fail to perform as well as PFAS materials are not specified. It is impossible to tell if the alternatives are representative of all DWR treatments or the two they may have tested in their undescribed assessment.

The method for determining a "better environmental profile" is not specified. Specifically, no data for determination of toxicity for any alternative are provided.

"Performance" of the treatments is not defined.

"Effective water repellency" is not defined.

If you have access to a study please let us know.

Thank you very much,

Andy

From: Simona, Xenia and Arlene [mailto:simona@greensciencepolicy.org]
Sent: Wednesday, January 27, 2016 3:30 PM
To: Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>
Subject: PFAS Analysis Call Jan. 28 @ 8 am PST

Dear Andy,

We look forward to our PFAS analysis call tomorrow, Thursday Jan. 28 at 8 am PST / 11 am EST / 5 pm CET. Please see the call info and agenda below.

Best wishes,
Simona, Xenia, and Arlene

Dial-in: Ex. 6 Personal Privacy (PP)
Access code: Ex. 6 Personal Privacy (PP)
Host code:

Agenda

1. Welcome! and introductions - *5 min*

2. New person is needed to lead the PFAS Analysis calls. Since Xenia by March 1st will change job to the European Environmental Agency (EEA) in a position called 'Chemicals, Health and Environment', she cannot steer the PFAS analysis calls anymore due to potential conflicts of interest. Another option is to join the analysis calls with the science and policy calls - *5 min*

3. Round of News - *20 min*
- Low levels of PFAS in ALL paper and board measured both by TOrF and PIGE – searching for the source. Carryover, F- or real? Consequences for regulations
- Greenpeace study of textiles
- US FDA withdrawal of three PFAS for food paper and board
- ...

4. Emerging PFAS in human blood – common coordination? DTU has become part of the upcoming pan-European biomonitoring study. Suggestion for new PFAS to include, and written arguments – preferable backed with references - are most welcome. Could it be put in relation to the UMCR data? Anyone else doing blood analysis? - *10 min*

5. Stefan asks for Comments – written if possible - to help to respond to the Non-PFC DWRs Can Release More Chemicals (see below) – *5 min*

6. Which PFAS toxicology review is the most up-to-date ? – *5 min*

7. Which data and/or regulations could support efforts to reduce exposure to PFAS in the US? – *10 min*

W.L. Gore: Non-PFC DWRs Can Release More Chemicals
SportsOneSource Media Posted: 1/4/2016

W. L. Gore & Associates released research it says shows that outdoor products made with non-fluorinated DWR technology can result in more toxins being released into the environment because consumers must wash and reapply such finishes more often than PFC-based DWRs to maintain water repellency.

The study found that:

- Current non-fluorinated DWR fails to meet backpackers' expectations; outerwear quickly saturates with water causing increased garment weight and wearer discomfort.
- The consumer's desire to maintain repellency performance by using after-market treatments influences environmental impacts far more than choice of chemistry used to make DWR treatments.

This is the third Life Cycle Assessment (LCA) that W.L. Gore (Gore) has published since 2013 and was conducted with input from third-party experts, including the Institute for Environmental Research in Vashon

Island, WA.

LCA is the global standard for assessing the total environmental impact of a finished product and takes into account all aspects of a product's ecological footprint including resource and energy consumption, emissions to air, water and land, as well as health and ecosystems, and more. Gore Fabrics has been using LCAs since 1992.

Gore conducted this LCA study to help guide future choices of DWR technologies. The study compared the environmental impacts, such as potential toxicity measured in equivalents of 1,4-Dichlorobenzene (kg DCB eq.), of different DWR technologies: a non-fluorinated DWR (hydrocarbon based) and a short-chain polymer DWR currently used by Gore, officials said.

The assessment of Gore-Tex jackets, with different DWR treatments, in backpacking and high aerobic activities showed that the currently available non-fluorinated DWR offering does not offer a better environmental profile than Gore's current fluorocarbon-based DWR treatment.

The study revealed that the lower performance of non-fluorinated DWR treatments is the single biggest driver for the jacket's environmental impact. The reason: In an attempt to maintain a satisfactory level of water repellency, backpackers would have to wash and re-apply DWR treatments more frequently on garments with non-fluorinated DWR's compared with Gore's current short-chain polymer DWR. A well-functioning DWR treatment is crucial to prevent the jacket from saturating with water, which increases weight and discomfort and could lead to reduced concentration and individual performance.

Field test of DWR treatments

Gore put jackets treated with different DWR treatments through outdoor backpacking field tests which informed the usage scenario in the LCA study. "In real-life situations, the currently available non-fluorinated DWR treatment exhibited clear shortcomings: after just a short period of use, it was observed that it no longer provided effective water repellency," Gore officials said. "A situation that would likely lead to continued user dissatisfaction or attempting to restore water repellency by washing and re-apply DWR treatments more frequently. The LCA incorporated this extra care to probe these use phase impacts, which highlights the importance of durable performance."

"This might not be realistic scenario for many consumers, but accepting loss of water repellency will likely result in disappointment and premature replacement of a jacket", said Bernhard Kiehl, Gore Fabrics sustainability leader. "Frequently replacing a jacket comes with similarly negative environmental impacts since the production of a new jacket uses up additional resources like chemicals, energy and water, etc."

Kiehl added: "As a technology leadership company we are committed to continually reducing the environmental footprint of our products and acting as a role model for a more responsible outdoor industry. To this end, we will continue to invest in research and apply sound science to drive future innovations."

Life Cycle Assessment (LCA) is a global standardized tool (DIN EN ISO 14040) to measure the environmental footprint of a finished product. LCA assesses the whole process with a "cradle to grave" approach - from raw material extraction through materials processing, manufacture, distribution, use, repair and maintenance to disposal or recycling.

Read more about Life Cycle Assessment at gore-tex.com/responsibility.

Well known for its waterproof-breathable Gore-Tex fabric, Gore's portfolio includes everything from high-performance fabrics and implantable medical devices to industrial manufacturing components and aerospace electronics. Headquartered in the United States, Gore posts annual sales of more than $3 billion and employs more than 10,000 associates with manufacturing facilities in the United States, Germany, the United Kingdom, Japan and China, and sales offices around the world

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